MANAGEMENT CONSIDERATIONS

- **Introduction**

The decision to approve the Pinedale Anticline Project as described for the *Resource Protection (RP) Alternative on Federal Lands and Minerals* (Section 2), subject to the Administrative Requirements and Conditions of Approval (Section 3), the Management Area Exploration and Development Restrictions for Resource Protection (Section 4), the Wyoming BLM Mitigation Guidelines and Standard Practices for Surface Disturbing and Disruptive Activities (Appendix A), the Mitigation and Monitoring Opportunities Brought Forward From the Pinedale Anticline EIS (Appendix A), the Erosion Control, Revegetation, and Restoration Plan (Appendix A), and the Procedures for Processing Applications in Areas of Seasonal Restrictions (Appendix A) will allow for the exploration and development of the Pinedale Anticline Project area while providing protection of other natural resources and environmental quality.

The objectives that will be met under the *RP Alternative* on Federal Lands and Minerals are:

- allow maximum economic recovery of natural gas from the leaseholds;
- preserve, to the extent practicable and reasonable, unique and valuable characteristics of the natural resources present in the PAPA;
- develop mitigation measures, where practicable and reasonable, to offset impacts which cannot be avoided;
- develop monitoring programs to assure that predictions made regarding impacts associated with this alternative are not understated and to allow for early resolution of unpredicted impacts; and
- establish a mechanism by which the public can have continual and meaningful input into development in the PAPA.

Many of the issues raised by the WGFD and public during scoping and during the workshops involved the need to minimize surface disturbance and human presence (seasonally) in certain areas of the PAPA. Examples of these areas include, but are not limited to:

- big game winter ranges (minimize habitat loss and human presence during winter);
- sensitive viewshed (minimize visual impacts by reducing surface disturbance);
- sage grouse nesting habitat (minimize nesting habitat loss and human presence during strutting and nesting); and
- the Lander Trail viewshed (minimize visual impacts by reducing surface disturbance).

The RP Alternative was designed to evaluate options that will result in reduced surface disturbance and human presence in these types of areas. Two options are addressed - pad drilling and centralized production facilities. Both options could be used to significantly reduce human presence as well as surface disturbance in sensitive areas.

The RP Alternative on Federal Lands and Minerals will continue to utilize the BLM's standard mitigation measures. For example, the standard mitigation measures establish a 0.25-mile protective buffer around sage grouse leks. However, in addition the RP Alternative will add a limit on increased noise at leks during their use period to no more than 10 decibels (dBA) above background. However, BLM will monitor the dBA level to determine whether this level is appropriate. For big game winter ranges and high quality sage grouse nesting habitat, no more than an *average* of 2 well pads/section would be allowed within Management Area 5 under the RP Alternative. In the Mesa Breaks (Management Area 2 - see Figure 8), the RP Alternative objective is to allow no well pads or new roads. The operators would be required to directionally drill bottomholes under all of this very important deer winter habitat. However, if it is not feasible to develop portions of the Breaks from directional wells, then an exception will be considered to allow a well pad within the Breaks. Production facilities will be located outside the Breaks.

The RP Alternative will significantly expand protection of the Lander Trail by reducing potential impacts to the trail's setting or viewshed from 0.25 to 3.0 miles north of the trail and south of the trail to Wyoming Highway 351. This alternative expands the current BLM 0.25 mile buffer around occupied dwellings to include all lands zoned as residential by Sublette County or from subdivisions currently approved by Sublette County. Visual resource protection is expanded to include the entire Sensitive Viewshed SRMZ, not just the Visual Resource Management Class II area. The Programmatic Agreement provides for the development of a trails management plan in consultation with the Oregon California Trails Association (OCTA), NPS and SHPO to further direct proactive historic trails management efforts.

Drill Rig Limit - BLM received several comments during scoping expressing concerns regarding the pace of development in the project area. The EIS analyzed two levels of drilling rig operation, 8 rigs operating under the Standard Stipulations Alternative and 5 rigs operating under the Resource Protection Alternative. The analysis showed that less impact could be expected at 5 rigs than at 8 rigs. For example a reduction in the amount of vehicular traffic and in the number of workers would occur, lower NO_x emission levels would occur, fewer acres would be disturbed at one time, etc. BLM has concluded that to limit the number of rigs working in the PAPA at any one time (on Federal and non-

Federal lands and minerals combined) would be extremely difficult administratively. However of greater consequence and importance is the fact that the Operators are already seasonally restricted over a significant portion of the PAPA, leaving a relatively small window within which to complete field development activities (i.e., May 1 through July 1 restriction in many areas due to sage grouse nesting, mountain plover nesting, bald eagle nesting; July 1 through November 15 no restriction). The EIS proposed action and analysis inherently provides for a control on the pace of development. Many factors enter into this including availability of rigs, availability of workers, market price of natural gas, budgetary constraints, etc. Therefore, the BLM will place no restrictions on the number of rigs drilling within the PAPA at any one time. The Operator must be able to take advantage of the drilling window available.

The RP Alternative, under the standard mitigation measures (Appendix A), includes provision for *one time exception* consideration to drill in areas with seasonal constraints during closed periods (e.g., in big game crucial winter range between November 15 through April 30 and sage grouse leks and nesting habitat between March 1 through May 15 and April 1 through July 31, respectively) provided that it is based upon environmental analysis of proposals and, if necessary, must allow for other mitigation to be applied on a site-specific basis. No information is currently available to suggest that *waiving or modifying* the seasonal constraints in the project area would not be detrimental to the resources the seasonal restrictions are intended to protect.

The *RP* Alternative, as detailed by the ROD, in accordance with FLPMA, provides for the minimization or elimination of unnecessary and undue impacts. BLM believes that the *RP* Alternative as authorized in this ROD provides the best management balance for the multiple uses within the area of the Pinedale Anticline Project while sustaining a long term yield, promoting stability of local and regional economies, maintaining environmental integrity, and conserving resources for future generations.

The resources with the potential to experience the greatest change or impact from the development are *land use, visual resources, air quality,* and *wildlife habitat*. Other resources that will also be affected, but to a lesser degree, are *recreation, soils, vegetation, livestock grazing*, and *water quality*.

The *RP* Alternative authorized in this ROD requires predisturbance planning for implementation, operation, and abandonment activities. This process will specify the means by which unnecessary and undue impacts are to be mitigated and the manner in which the natural resources are to be protected.

In all, the BLM decision to approve the Pinedale Anticline Operators' field development proposal, as described under the *RP* Alternative and as constrained by the *ROD*, takes into account important management considerations, Federal Agency missions, as well as the fact that natural gas, as directed by the U.S. Congress and the President, is this Nations energy of choice to comply with the Clean Air Act amendments of 1990, and to help meet the public need for cleaner burning, less polluting natural gas. The *RP* Alternative as authorized in this ROD provides the best balance of these factors with the degree of adverse impact to the natural and physical environment. The development effort will help meet public needs for natural gas while at the same time allow humans to coexist with nature. The long-term productivity of the area will neither be lost, nor substantially reduced, as a result of approving the Pinedale Anticline Project as constrained under the ROD. The only irretrievable resource will be natural gas.

The decision to approve the Pinedale Anticline Project includes careful consideration of the following factors:
a) consistency with land use and resource management plans; b) cooperating agency participation by the USDA-Forest Service, Corps of Engineers, and the State of Wyoming; c) public involvement, scoping issues, and draft and final EIS comments; d) management considerations based upon relevant public comments received; e) agency statutory requirements; f) national policy; and g) measures to avoid or minimize environmental harm. A brief discussion on each of these factors follows.

a. Consistency with Land Use and Resource Management Plans - The decision to authorize the Pinedale Anticline Project is in conformance with the overall planning direction for the area. The Pinedale Resource Management Plan EIS and Record of Decision (USDI-BLM 1988) states that "The public lands and federal mineral estate will be made available for orderly and efficient development of mineral resources. All minerals actions will comply with goals, objectives, and resource restrictions (mitigation) required to protect the other resource values in the planning area. ... Generally, the planning area will be open to consideration for exploration, leasing, and development for all leasable minerals, which include oil, gas, coal, oil shale, and geothermal steam, in accord with all applicable provisions (e.g., restrictions, prohibitions)." Standard and special protective measures have been identified and incorporated into the Pinedale Anticline Project approval to reduce or eliminate unnecessary and undue adverse impacts.

b. Cooperating agency participation by the USDA-Forest Service, Corps of Engineers, and the State of Wyoming - The Pinedale Anticline Project EIS included the participation of the USDA-Forest Service because of their administrative responsibility over wilderness areas located in the Bridger-Teton and Shoshone National Forest's wilderness areas air quality related values and

because of their special expertise in aiding in the assessment of air quality impacts; the Corps of Engineers because of their jurisdiction and special expertise over navigable waters of the US and the potential to affect these waters along the New Fork River; and the State of Wyoming because of their jurisdiction and special expertise over state lands, wildlife, air quality, water quality, oil and gas development, transportation on state highways, and because of the essential need to ensure consistency in management of the exploration and development of the natural gas resource. This was the second oil and gas development EIS that the State of Wyoming participated in as a cooperating agency. Their involvement, and that of the other agencies, has contributed significantly to the successful preparation of a comprehensive, high quality environmental impact analysis and innovative identification and development of reasonable mitigation measures.

c. Public Involvement, Scoping Issues, and EIS Comments - CEQ regulations require that agencies responsible for preparing an EIS use an early scoping process to identify significant issues. Early and improved scoping was emphasized by the Green river Basin Advisory Committee (GRBAC). The principal goals of the scoping process were to permit public participation and to identify issues, concerns and potential impacts that require detailed analysis in the EIS. The scoping process was the primary mechanism used by BLM to identify public interests and concerns about proposed development activities in the PAPA.

BLM actively and directly solicited public involvement by circulating information through mailings, public announcements, and notices in local newspapers and through a series of public workshops. The public was provided ample opportunity to submit comments and recommendations by mail, over the telephone or fax, e-mail, or in person. The BLM did not only accumulate significant public comment, the agency considered and responded to the concerns expressed. Those concerns lead directly to the development of the scope of the EIS. A chronology of the public scoping process used by the BLM for this project is provided in Table 1-2 of the DEIS.

A notice of intent to conduct public scoping and prepare an EIS was published on July 14, 1998 in the *Federal Register*. On July 9, 1998, BLM mailed a scoping statement to the media, governmental agencies, environmental organizations, industry representatives, individuals, landowners and grazing permittees. The scoping statement explained the general nature of the project and requested initial comments concerning the level of analysis to be included in this document. The formal public scoping comment period ended in August, 1998.

Meetings were held with interested members of the public on July 14, 1998 to discuss issues associated with transportation planning and grazing. The public was invited to attend a tour of the PAPA on July 23, 1998. The tour included stops at a number of important areas in the PAPA including sensitive viewsheds, the Lander Trail, reclaimed well sites, existing producing well pads, etc. At each of these stops discussions were held with the attending public and concerns noted. On the evening of July 23, 1998 a public hearing was held in Pinedale. Six agency scoping meetings were held, including two meetings designed to allow agency participation in determining the geographic extent of the cumulative impact analysis for each resource.

Public involvement was also solicited at a series of workshops held in Pinedale during the week of December 7, 1998 and again on August 5, 1999. At these workshops the public was presented with descriptions of the various scenarios for continued exploration and development of the gas resource and the tools which would be used by BLM to assess and quantify the impacts associated with the alternatives (i.e., visual simulations, models to predict degradation of habitat suitability, etc.). Preliminary descriptions of the alternatives were provided at the December workshops and the public identified additional concerns. During the August workshop, additional refinement of the mitigation alternatives was described to the public. Approximately 90 members of the public attended the workshops in December, 1998 and about 12 attended the August, 1999 workshop.

BLM held a public hearing in Pinedale on January 12, 2000. A total of 86 people signed in at the hearing - 17 gave statements. Local residents spoke at the hearing.

All comments received on the DEIS and on the FEIS were incorporated into the analysis of issues found in this EIS and considered in the development of the ROD. Over 100 comment letters were received during the scoping process, 235 comment letters were received on the DEIS, and 16 comment letters were received on the FEIS.

Because of on-going construction and drilling activity on private and state lands, and limited authorizations on federal lands, which were creating impacts to Town of Pinedale streets and Sublette County roads, a Transportation Planning Committee (TPC) was established for both the Pinedale Anticline and the Jonah Projects on November 18, 1999. A Memorandum of Understanding was prepared to formalize the working relationship between all parties participating in the TPC. The TPC is made up of representative of the Town of Pinedale, Sublette County Commissioners, a

representative for the residential area, recreation users, livestock users, oil and gas operators, environmental groups, State of Wyoming, Wyoming Game and Fish Department. The TPC has the purpose and responsibility to: 1) provide transportation (roads and pipelines) planning oversight for the Pinedale Anticline and Jonah Projects; 2) provide identification of and consideration for environmental and local needs, issues and concerns; 3) formulate and recommend potential solutions and implementation strategies; and 4) evaluate monitored results of approved solutions.

Transportation planning for the Pinedale Anticline Project Area will be an on-going activity and will incorporate consultation with the established Transportation Planning Committee (TPC).

d. Management Considerations Based Upon Relevant Public Comments Received - Many comments on the EIS raised similar concerns. Some of the more common concerns have been summarized below. All concerns expressed in comments on the DEIS and FEIS have been responded to and/or specifically provided for in the ROD.

1) Air Pollution Impacts Within High Mountain Wilderness Areas (Particularly Visibility and Acidification of Lakes) - Comments expressed concern that authorization of the Pinedale Anticline natural gas development project would cause serious impacts to the air quality related values of the wilderness areas within the Bridger-Teton and Shoshone National Forests.

2) Visual Impacts - Residents of the Town of Pinedale, Bargerville, and other subdivisions expressed concern over the visual impact and degradation from natural gas development on the face of the Mesa. Residents did not want to look out their windows, or when walking or biking roads south of Pinedale, see the degradation to the face of the Mesa. This would cause a significant impact to the tourism and special attraction of Pinedale and the surrounding area to recreating public. This would adversely impact the livelihood of many residents and the overall economy.

3) Wildlife Impacts - Comments expressed concern about the impacts from natural gas development on the wintering mule deer, antelope and sage grouse within the PAPA. Also, concern about the effects of development on sage grouse breeding and nesting activity.

4) Multiple Use Management - Many comments recognized the need and benefits of oil and gas development. They were not opposed to development nor did they expect it to stop. They were concerned, however, that values such as visual (pristine landscapes), air quality, water quality, visibility in wilderness areas, open space, scenic vistas, and health of fish and wildlife would not be taken into account. Development and implementation should be in accordance with multiple-use management. Development should be done under strict controls which the public can review.

5) Cumulative Environmental Impacts/Industrialization of Southwest Wyoming - Some comments expressed the belief that a cumulative environmental impact statement is needed to address the cumulative effects of mineral development on the natural resources in southwest Wyoming. They believe that regional industrialization of southwest Wyoming may be occurring significantly interfering with other uses and causing impacts on game herds, air quality and other resources.

6) Transportation Planning - Transportation concerns were expressed by the public (particularly the recreating and livestock user groups) and the Wyoming Department of Transportation. The increased traffic associated with the Jonah II and the added traffic of the Pinedale Anticline Project could increase safety risks on the highways and cause livestock and recreation user harassment.

e. Agency Statutory Requirements - The BLM decision is consistent with all federal, state, and county authorizing actions required to implement the Pinedale Anticline Operators' proposed action (see DEIS Table 1-3, page 1-11). All pertinent statutory requirements applicable to this proposal were considered. These include consultation with the USFWS regarding threatened, endangered, and candidate species; coordination with the State of Wyoming regarding wildlife, environmental quality, and oil and gas conservation; Sublette County Commissioners for coordination of construction and use permits; and coordination with the Town of Pinedale through the Transportation Planning Committee for travel concerns through the Town of Pinedale.

f. National Policy - Private exploration and development of federal oil and gas leases is an integral part of the BLM oil and gas leasing program under authority of the Mineral Leasing Act of 1920 and the Federal Land Policy and Management Act of 1976. The United States continues to rely heavily on foreign energy sources. Authorization for the lessees to exercise their rights in developing the oil and gas leases is necessary to encourage development of domestic oil and gas reserves to reduce the United States' dependence on foreign energy supplies. Also, natural gas is this Nation's "energy-of-choice" because it is clean burning and less polluting. Therefore, the decision is consistent with

national policy.

g. Measures To Avoid or Minimize Environmental Harm - The adoption of the *RP* Alternative in this decision includes all practicable means to avoid or minimize environmental harm. The decision, to ensure that the environmental consequences of exploration and field development activities will be minimal, includes not only the required environmental safeguards and resource protection measures prescribed by the Pinedale Resource Management Plan, it also includes the additional mitigating protection measures identified in the Expanded Pinedale Anticline Natural Gas Development Project draft and final EIS. The decision has given full consideration to all Public, local, state, and other federal agency input. No substantive issues remain unresolved as raised by governmental agencies, industry, or individuals.

- **Rationale for Administrative Requirements and Conditions of Approval**

Under 40 CFR 1505 and BLM's National Environmental Policy Act Handbook (H-1790-1), the ROD must discuss the management considerations and rationale for the decisions. This section briefly explains the rationale for the above administrative requirements and conditions of approval.

- **Authorizing Actions**

Before implementation may occur, all necessary federal, state, and county permits must be obtained.

- **Mitigation and Monitoring**

This section identifies the expectations relative to the reduction of impacts to minimize any which are unnecessary and undue, and to emphasize the requirement to monitor the implementation of the project on an annual basis to ensure that mitigation measures are implemented and that they are effective.

- **Site Specific Environmental analysis**

Because the EIS does not address <u>all</u> resource concerns site-specifically, further environmental review is necessary before the final location, mitigation, and monitoring needs for each well site, access road, gathering pipeline segment, compressors, or other facility can be determined.

- **Plans/Reports**

The specified plans and reports are requirements of state and federal regulation and policy to ensure orderly implementation of planned development.

- **Adaptive Environmental Management Process and Monitoring**

The Adaptive Environmental Management (AEM) Process is a management tool. The AEM process was recommended to the BLM during the comment period on the Draft EIS by the EPA and accepted by the BLM and the cooperating agencies as valuable in the management of project implementation. This process provides oversight of the project implementation, including monitoring of the effectiveness of mitigation, monitoring of the effects of project implementation, provides for mid-course corrections in implementation strategy and mitigation, and it provides for continued public involvement. At least an annual report and public meeting (more frequent if necessary), while active construction and drilling is ongoing, will be made to the public under this process to keep them informed and to provide for their input into activities occurring on the public lands within the PAPA. Because of the high degree of sensitive issues and resource values that exist within the PAPA, an AEM process is an excellent way of managing project implementation while ensuring appropriate and reasonable protection.

- **Transportation Plan/Transportation Planning Committee**

The Operators are required to comply with the Transportation Plan for the Pinedale Anticline Project and work within/through the Transportation Planning Committee to ensure road locations and pipelines are orderly and planned so that they do not contribute to unnecessary environmental degradation and to comply with existing Federal, State, County, and local requirements and restrictions developed to protect road networks, the traveling public, adjacent landowners and their property, and the natural resources.

- **Road Maintenance Agreement**

A road maintenance agreement is necessary because of multiple operators sharing the use of Collector and Local roads within the project area. To ensure necessary and timely repair and maintenance of shared roads and to avoid resource impacts due to dust and increased sedimentation, operators will be required, where necessary, to enter into an agreement for road maintenance. Because county roads are included within the projects area, coordination with the county will be necessary.

- **Air Quality**

As required under the Federal Land Policy Management Act and the Clean Air Act, the federal land management agency shall not conduct, support, approve, license, or permit any activity which does not comply with all applicable local,

state, and federal air quality laws, statutes, regulations, and implementation plans. In addition, the USDA-Forest Service, as the federal land manager for the affected Bridger and Fitzpatrick Wilderness areas in the Wind River Mountain Range, has responsibility under the USDA-Forest Service Organic Act of 1897, the Wilderness Act of 1964, the Forest and Range Renewable Resource Planning Act of 1974, and the National Forest Management Act of 1976 to protect wilderness areas against impairment. The Wilderness Act (and implementing Wilderness Area Air Quality Related Values Action/Monitoring Plans) requires that designated Wilderness Areas be managed in order to leave them unimpaired, with inconsistent uses held to a minimum. The BLM decision, to be affirmative in protecting Class I areas under USDA-Forest Service administration, is made in response to the USDA-Forest Service concern pertaining to the potential for significant impacts to air quality related values within the Bridger and Fitzpatrick Wilderness areas and in response to the mandates of the Clean Air Act and Wilderness Act to ensure the protection of wilderness resources under Federal administration.

The Clean Air Act, 42 U.S.C. 7401, provides the framework for the protection of air quality through state programs approved by the Environmental Protection Agency ("EPA"). The 1977 amendments to the CAA established provisions for Prevention of Significant Deterioration (PSD) of air quality, including Class I areas. Thus, the State of Wyoming has the authority and responsibility to regulate air quality impacts within the state, including Class I areas. The primary goals for visibility protection which the state must follow are found in Section 169A, of the Clean Air Act. It is the State's responsibility, under Section 169A of the CAA, through its EPA approved *State Implementation Plan* (SIP), to progressively work towards achieving the national goal of preventing and remedying impairment of visibility in Class I Wilderness areas. The role of the federal land manager in accomplishing this and in the administration of the wilderness area Air Quality Related Values (AQRVs), is to participate in the development and revisions of the SIP.

The BLM recommends that the USDA-Forest Service work with the State of Wyoming to protect the air quality, helping to ensure no adverse impacts occur to PSD Class I areas administered by the USDA-Forest Service.

Emissions - The air pollutant emission levels from each well and compressor were based upon the analysis assumptions contained in the *"CALMET/CALPUFF Modeling Technical Report for the Pinedale Anticline Oil and Gas Exploration and Development Project"* (ENVIRON International Corporation, November, 1999), which includes the application of current Best Available Control Technology (BACT) to VOC emissions at well sites and NO_x from compressors. In addition, analysis assumed compliance with Wyoming Department of Environmental Quality, Air Quality Division, *Oil and Gas Production Facilities Chapter 6, Section 2 Permitting Guidance, revised January 2000.*

Well Site Emissions - The *"CALMET/CALPUFF Modeling Technical Report"* (ENVIRON 1999) provides the technical basis for the well site emission assumptions. Specific "near-field" modeling was conducted for particulate matter, sulfur dioxide, carbon monoxide, nitrogen oxide, and hazardous air pollutants, and established the wellfield emission levels for these pollutants. The analysis assumed the application of BACT in permitting wells with VOC emissions above 20 tons/year.

Compressor Site Emissions - The Pinedale Anticline EIS, based upon assumptions in the CALMET/CALPUFF Modeling Technical Report, concluded that impacts from 26,000 hp of compression (plus other cumulative sources) at a NO_x emissions rate of 1.5 g/hp-hr from the Pinedale Anticline Project, combined with other recently proposed projects in southwest Wyoming, would be significant in increasing visibility impairment in the Bridger Wilderness Area. However, based on the application of emissions reduction mitigation efforts by Ultra Petroleum at the Naughton power plant, and considering the timing, magnitude, and duration of the remaining projected cumulative visibility impacts, the USDA-Forest Service considers these impacts to be within an acceptable range.

If activity and corresponding emission assumptions and impacts exceed those used for the analysis, the BLM, in cooperation and consultation with WDEQ, EPA, USDA-Forest Service and other affected agencies, will undertake additional cumulative air quality environmental review as required by CEQ regulations 40 CFR 1502.9(c)(1)(ii).

Visibility Impact - Through its responsibilities under the Wilderness and Clean Air Acts, the USDA-Forest Service has established a Limit of Acceptable Change for visibility of 0.5 deciview or greater to occur no more than one day per year in USDA-Forest Service wilderness areas in Wyoming. The Pinedale Anticline EIS found that for all of the project scenarios and alternatives, the estimated visibility impacts *due to the project alone* will not exceed the management threshold of 0.5 or 1.0 dv change. The EIS *Cumulative Impact Analysis* found that NO_x emissions associated with the reasonably foreseeable development natural gas projects (Fontenelle, Moxa Arch, Stagecoach Draw, Jonah II, Continental Divide, etc.), when added to existing NO_x emissions in southwestern Wyoming, could result in a perceptible visual range reduction on 4 to 9 days annually within the PSD Class I Bridger Wilderness Area.

However, as noted under Compressor Site Emissions, based on the application of emissions reduction mitigation efforts by Ultra Petroleum at the Naughton power plant, and considering the timing, magnitude, and duration of the remaining projected cumulative visibility impacts, the USDA-Forest Service considers this potential impact to be within an

acceptable range.

Atmospheric Deposition Impact Mitigation - The Pinedale Anticline EIS found that all potential changes in lake acidity *due to the project alone* will not exceed the USFS Limit of Acceptable Change (LAC) threshold of 10 percent change. The *Cumulative Impact Analysis* found that NO_x emissions associated with the development of the proposed natural gas projects (Fontenelle, Moxa Arch, Stagecoach Draw, Jonah II, Continental Divide, etc.) would be below applicable significance criteria for atmospheric deposition. These criteria include a change in lake Acid Neutralizing Capacity (ANC) less than 10 percent (for lakes with background ANC above 25 microequivalents per liter (μeq/l)) or less than 1 percent (for lakes with background ANC below 25 μeq/l).

No additional air quality mitigation was determined to be necessary to further reduce potential atmospheric deposition impacts to low ANC lakes for the following reasons: 1) no lakes with ANC values below 25 μeq/l were identified in the air quality impact assessment; 2) Wyoming DEQ requires air quality permits which would examine expected emissions from specific project components (such as compressor engines) prior to their construction; 3) Wyoming DEQ requires that a site-specific BACT analysis be conducted by the proponent as part of its pre-construction permit application and requires BACT be determined and applied in all air quality permits; and 4) all Federal actions associated with this project require additional site specific environmental analysis (including air quality analysis) by the Federal agencies which may identify additional emission control measures to ensure protection of air quality resources These requirements will help mitigate potential NO_x emissions impacts.

Air Quality Mitigation Program - No additional air quality mitigation was determined necessary to further reduce potential air quality impacts for visibility, atmospheric deposition, or near field impacts (e.g., dust suppression, VOC and HAPs reduction) for the following reasons: 1) for the reasons listed above under "Atmospheric Deposition"; 2) because construction and operation would meet all applicable National Ambient Air Quality Standards and Wyoming Ambient Air Quality Standards; 3) potential emission levels would comply with applicable Prevention of Significant Deterioration (PSD) Class I and Class II Increments; and 4) pollutant concentrations during operation would not "overlap" between well locations, even with the densest assumed well spacing.

As previously described in the *Visibility* sections, a level of visibility impact concern was identified due to total NO_x emissions from future permit authorizations (including rights-of-way, sundry notices, and applications for permit to drill). In response to this, in 1996, in conjunction with the Fontenelle and Moxa Arch oil and gas development EIS's, the USDA-Forest Service, Wyoming DEQ-Air Quality Division, Environmental Protection Agency, and the BLM established a "level of concern" at 977 tons per year (t/y) of new NO_x emissions for southwest Wyoming and, in 1998, in conjunction with the Jonah II EIS, established a "level of concern" at 158.6 t/y of new NO_x emissions for the Jonah II field. In other words, new emissions of NO_x could not exceed these levels without an apparent exceedence of the USDA-Forest Service's 0.5 deciview limit of acceptable change.

In July of 2000, a joint agreement between the USDA-Forest Service, Wyoming Department of Environmental Quality-Air Quality Division, Environmental Protection Agency, and the BLM was signed to discontinue the use of the 977 tons/year (tpy) level of concern for southwest Wyoming and the 158.6 tpy level of concern for the Jonah II project area. This was done because use of the levels of concern were no longer appropriate nor meaningful due to the improved accuracy of modeling tools, recent reductions in levels of permitted potential emissions, and given the best available information used to establish the levels of concern.

The incremental nitrogen oxide emissions tracking report for December 3, 1999 concluded that

> "The WDEQ-AQD emissions tracking report indicates that the USDA-Forest Service NO_x *"level of concern"* is not in danger of being exceeded."

The emissions tracking report records permitted potential emissions. These permitted potential emissions are expected to decrease due to recent reductions in permitted levels of NO_x at the Naughton Power Plant. The December report goes on to say that

> "The BLM and WDEQ-AQD also feel it is appropriate ... to either revise or eliminate the NO_x *"level of concern"* (i.e., for Southwest Wyoming and Jonah II Project) based on additional modeling analysis which utilized the agencies agreed upon CALMET/CALPUFF model. Results are now available for the Continental Divide/Wamsutter II FEIS and Pinedale Anticline DEIS air quality analyses and should be taken into account when discussing the appropriateness of the *"levels of concern"*."

This consideration for change is consistent with the Records of Decision for the *Fontenelle Natural Gas Infill Drilling Projects EIS* (March 4, 1997), the *Expanded Moxa Arch Area Natural Gas Development Project EIS* (March 5, 1997), the *Jonah II Field Natural Gas Development Project EIS* (April 27, 1998), and the *Letter of Agreement for Tracking Nitrogen Oxide Emissions* (June 20, 1997) between the BLM and Wyoming Department of Environmental Quality. These documents state that the "level of concern" may be changed (lowered, raised, or eliminated) based upon supporting technical analysis, when the BLM, Wyoming DEQ, EPA

Region VIII, USDA-Forest Service and any other affected agencies concur.

On January 14, 2000, the Wyoming DEQ-AQD, EPA Region VII-NEPA, USDA-Forest Service, National Park Service and BLM met to discuss the disposition of the "level of concern" (977 tpy NO_x emissions for southwest Wyoming and the 158.6 tpy NO_x emissions for the Jonah II project area, above levels existing January 1, 1996). It was agreed that these levels of concern were no longer meaningful. Their derivation was based upon the ISCST3 screening model, a less sophisticated method of predicting air quality impacts than the modeling system (CALMET/CALPUFF) currently being used in BLM EIS's. Since the completion of the Jonah II EIS air quality analysis, modeling analysis has been completed for the Continental Divide and Pinedale Anticline EIS's which utilized the more sophisticated and realistic, agency agreed upon, CALMET/CALPUFF model.

The most recent modeling analysis incorporating all reasonably foreseeable emission increases in southwest Wyoming is the Pinedale Anticline DEIS (November 1999). The cumulative impact analysis contained in this EIS, which assumed the implementation of over 8,450 wells and associated compression, showed that the 1.0 deciview change threshold would not be exceeded and that the 0.5 deciview change threshold would be exceeded by four to nine days depending on which alternative assumptions were applied. The USDA-Forest Service reviewed the days of modeled cumulative impacts that are greater than 0.5 deciview change and determined that cumulatively, the impacts from the Pinedale Anticline Project, combined with other recently proposed projects in southwest Wyoming, would be significant in increasing visibility impairment in the Bridger Wilderness Area (Pinedale Anticline DEIS page 5-19). However, based on the application of emissions reduction mitigation efforts (both permitted and actual emission decreases) by Ultra Petroleum and PacifiCorp at the Naughton Power Plant, and considering the timing, magnitude and duration of the projected cumulative visibility impacts, the USDA-Forest Service considers it unlikely that these impacts will result in actual impaired visibility at the Bridger wilderness.

It was agreed that diligence needed to be maintained in quantifying or tracking NO_x emissions (monitoring) for the protection of the wilderness air quality related values of visibility and lake acidification. Because of their proximity to the Bridger Wilderness boundary, the Pinedale Anticline and Jonah II projects will be discussed individually, in addition to the Rock Springs BLM District report, on an annual basis. The BLM will provide tracking reports of actual on-the-ground calculated potential NO_x emissions (i.e., the level of NO_x emission from permitted, actually constructed/installed facilities based upon the permitted level of emissions per well location, compressor facility, etc.) for the Jonah II and Pinedale Anticline project areas. The next set of emissions tracking reports will be provided in December 2000.

The agencies agree that through continued use of the CALPUFF model in future EIS's, cumulative emissions impacts will continue to be assessed in SW Wyoming for each additional significant emissions source on Federal Lands. Use of this model is a more accurate tool and meaningful predictor of potential impacts to wilderness air quality related values, such as visibility and lake acidification, than is the tracking of permitted potential emissions.

This agreement among the agencies will remain in effect until an information source provides recommendations, with supporting technical analysis regarding regional visibility or lake acidification impacts, that the tracking of NO_x emissions should be revised or eliminated. The agencies will review the technical analysis and agree on the appropriate change.

Air Quality Monitoring/Tracking Program - Based on the preceding descriptions of potential impacts, identified mitigation measures, and tracking program, no additional air quality monitoring requirements are necessary to measure and track potential air quality impacts. The BLM will continue to cooperate with existing visibility and atmospheric deposition impact monitoring programs. Additional monitoring needs may be identified by the Interagency Committees on Air Quality.

The WDEQ-AQD emissions tracking will continue, on an annual basis, to report changes in permitted potential NO_x emission levels since January 1, 1996. In accordance with the June, 2000 Joint Agreement between the BLM, Wyoming DEQ, USDA-Forest Service and the Environmental Protection Agency, in maintaining diligence in the monitoring for the protection of wilderness air quality related values of visibility and lake acidification, the BLM, in consultation with the Wyoming DEQ-AQD, will track emissions for the Pinedale Anticline and the Jonah II projects on an annual basis.

Beginning in December 2000, NO_x emissions from within the BLM Pinedale, Kemmerer, and Rock Springs Field Office Areas will be summarized and reported on annually. However, because of their proximity to the Bridger Wilderness boundary, the Pinedale Anticline and Jonah II projects will be split out and summarized and reported on individually. The BLM will provide tracking reports of actual on-the-ground calculated potential NO_x emissions (i.e., the level of NO_x emission from permitted, actually constructed/installed facilities based upon the permitted level of emissions per well location, compressor facility, etc.) for the Jonah II and Pinedale Anticline project areas.

The BLM will maintain communication with the Wyoming DEQ to monitor NO_x increment emissions. Implementation will require close coordination between the federal land

management and state environmental regulatory agencies regarding receipt of applications for NO_x emitting sources and maintenance of the NO_x emissions inventory. Wyoming DEQ and the BLM will jointly monitor and track NO_x emission levels within the airshed of the Rock Springs, Kemmerer, and Pinedale Field Office Areas and share data with each other and other interested agencies as requested.

- **Special Status Species**

The measures listed under this section are required to comply with the Endangered Species Act. Species listed here and in Appendix A will be afforded full protection. Changes in the scope of the project that may result in an effect to listed, candidate, or migratory bird species or their habitat will require the BLM to re-initiate Section 7 Consultation under the Endangered Species Act (ESA). Any measures developed through this consultation will be implemented by the Operators. The BLM is responsible to ensure compliance with the ESA.

- **Raptor Nest Protection**

The buffer zone established around *active* raptor nests is to ensure the future functional use of raptor nests and raptor recruitment of young following construction and drilling operations. The buffer is based upon the findings of several research studies designed to determine raptor flushing distances due to human activity. Until there is conclusive research to indicate otherwise, BLM will continue to maintain these buffer zones to protect raptors.

- **Sage Grouse Protection**

The sage grouse is the predominant and most important game bird in the analysis area. There are 44 leks (strutting grounds) within the PAPA. The entire analysis area is generally considered year-round habitat for sage grouse and provides high value nesting and brood rearing habitat. Important habitat areas for these birds are strutting grounds (leks), brood-rearing areas, and wintering areas.

Lek Protection - This mitigation of avoiding surface disturbance within 0.25 miles of a sage grouse lek (strutting ground) from March 1 through May 15 is imposed to preclude displacing sage grouse which affects successful breeding and the perpetuation of the species. Also, to avoid enhancing raptor predation on strutting sage grouse, permanent, high profile structures such as buildings, storage tanks, overhead powerlines, etc., will not be allowed within 0.25 miles of a lek. Linear disturbances such as pipelines, seismic activity, etc., could be granted exceptions. The BLM and WGFD will continue to gather and evaluate information on sage grouse leks in potential sage grouse habitat. These field evaluations for leks will be conducted to verify the lek activity. BLM and WGFD wildlife biologists will ensure that such surveys are conducted using proper survey methods at the proper time of year.

Nesting Protection - To avoid displacing nesting sage grouse, construction activities within a two-mile radius of active leks will be avoided from April 1 through July 31, or as specified by the BLM AO. The application of BLM seasonal occupancy restrictions will result in the avoidance of impacts to breeding and nesting activities, and implementation of a reclamation/habitat restoration plan will, over time, mitigate the long-term loss of sage grouse habitats.

- **Big Game Crucial Winter Range Protection**

This measure is specified to emphasize the limitation on long-term acres of disturbance associated with well pads and access roads. The area of disturbance caused by implementation of the projects is expected to be limited to the average long-term disturbance of 1.5 acres per well pad and 2.9 acres per mile of road (i.e., 24-foot average long-term disturbance unreclaimed roadway width).

- **Water Resources Protection/Monitoring**

The water resources protective measures are required for surface and ground water protection from contamination, increased sedimentation, depletion, aquatic resource protection, domestic and livestock water use, and to comply with the Clean Water Act. A monitoring program will be implemented to ensure that the Green and New Fork Rivers (currently on the State of Wyoming's 303(d) list) continue to support their designated use.

- **Water Well Protection/Monitoring**

These measures are necessary to protect both domestic and livestock water wells from contamination and draw-down.

- **Paleontological Values Protection**

These measures are required to prevent unnecessary and undue impacts to the paleontology resource and to protect workers from inadvertently breaking the law.

- **Soils Protection/Reclamation/Monitoring**

The measures specified are necessary to protect soil against erosion and to ensure successful reclamation. The standard practices referred to in Appendix A are the practices that BLM and the industry have routinely applied to ensure soil stabilization. Highly erodible or hard to revegetate soils, sandy soils, and alkaline soils will be avoided. To ensure successful reclamation, a monitoring program will be required with documentation in the form of an annual report presented by each operator or collectively for the PAPA during the annual review.

- **Vegetation Protection/Reclamation/Monitoring**

The measures specified are necessary to protect vegetation from unnecessary vegetation disturbance and to ensure successful reclamation. The same monitoring applied for soils will be applied to vegetation restoration.

- **Noise and Odor**

Continuous, long-term noise and odor from field development and production activities can cause significant impacts. The potential for this to occur was identified in the EIS. The proximity of field development activity to the residences of Pinedale, Bargerville, dwellings along the New Fork and Green Rivers, and sage grouse strutting and nesting areas creates the most immediate concern. The EIS showed that a noise level increase of 10 decibels (dBA) above background would cause a significant impact. To avoid this, the selection of new well and compressor locations, collector roads, and other facilities will be made to ensure that this is not exceeded at these (dwellings, sage grouse leks, raptor nests, etc.) and other sensitive receptors identified during the site specific environmental analysis process. To control short term and long term odor near dwellings closed systems can be used while drilling and long-term odor from producing well can be controlled by locating production facilities an appropriate distance away from the dwelling.

- **Night Lighting**

Night lighting (long-term lights at a facility or well location) causes an unnecessary deterioration of the natural environment. This is an adverse impact to those who live nearby or who wish to experience quite and the enhanced viewing of stars. Continuous night lighting of facilities is not necessary. Night lights at a facility are only necessary for emergencies or for a night time maintenance visit to a well or other facility. During non-use, no lights should be turned on.

- **Cultural/Historic Resources Protection**

The mitigation identified is necessary to comply with the Antiquities Act of 1920; the Archaeological Resources Public Protection Act of 1979; Section 106 of the National Historic Preservation Act, and the Regulations for the Preservation of American Antiquities (43 CFR Part 3).

- **Socioeconomic**

Because of the relatively short window within which several of the Operators have to construct and drill their leases, BLM will work with the Operators to plan proposed development operations such that seasonal restrictions do not seriously impact the associated workforce. BLM will work with the Operators to facilitate year round drilling where unnecessary and undue impacts to wildlife or other resources would not occur.

- **Land Use**

The land use measures are put in place to help manage and reduce the number of roads within the project area. Roads not needed for well field operations (generally existing two-tracks) or for other uses like livestock operations and recreation will be reclaimed. This will be coordinated with the TPC. This effort will restore forage, reduce areas susceptible to soil erosion, and restore wildlife habitat.

- **Livestock Grazing**

The Standard Practices and mitigation brought forward from the EIS is necessary to protect livestock grazing within the PAPA.

- **Hazardous Material**

The Standard Practices and the Hazardous Materials Management Policy and Procedure of the Hazardous Materials Summary in Appendix D are necessary to protect public health and safety within the project area.

- **Remedial Action/Compliance Monitoring**

This measure has been identified to ensure awareness of the need for immediate and appropriate remedial action in the event of an unacceptable impact such as accelerated erosion, failed revegetation effort, or any other unexpected event. Within the context of the AEM process, the Operators, through their *Environmental Compliance Coordinator*, will conduct the required monitoring of project sites and various resources to curtail and prevent unnecessary failures such as erosion control structures, etc., and to ensure impacts are minimized.

- **Request for Exception**

BLM's standard practices provide for consideration of a request for an exception to any lease stipulation, including a seasonal restriction or any other requirement such as use of a CPF, directional drilling, or pad drilling. However, supporting rationale/justification must be submitted with the request. The administrative measure describes the process for the application of exception requests and provides guidance on the content of the supporting justification.

- **Authorized Officer**

Self explanatory.

- **Management Area Development Restrictions For Resource Protection**

As explained in the introduction to this section, the PAPA

contains a number of sensitive human/environmental resources which could potentially be adversely affected by natural gas exploration and development activities. Many of these sensitive resource management zones (SRMZs) overlap making management of any particular area of the PAPA complicated. To address the overlapping SRMZs, and to provide a more organized means of managing development, the BLM divided the entire PAPA into 9 distinct Management Areas (MAs) (Figure 8). MAs 1 through 8 apply only to Federal lands and minerals. All non-Federal lands and minerals have been combined into MA 9. Each of the MAs have different management objectives based on the combination of SRMZs present. This approach to the management of the development within the PAPA allows for better tracking of the development. Also, the specified natural gas development restrictions/limitations were prepared to allow for the development of the natural gas in a reasonable balance with the resource management objectives for each MA.

The well pad density threshold (see Tables 2 and 3) identified for each MA is based upon *producing* pads. If the threshold is reached, no additional well pads will be authorized until additional environmental analysis has been completed. BLM has selected *producing* pads rather than *total* pads because non-producing pads will be recontoured and reclaimed. BLM recognizes that successful revegetation of shrub communities cannot be achieved in 3 to 5 years on these sites. However, since the total disturbance and vegetation change associated with these non-producing, reclaimed sites represents approximately 0.3 percent of the PAPA, unnecessary/undue adverse impact to wildlife species should not occur. The AEM process will provide the opportunity to periodically review the correlation between development, wildlife impact and well pad density threshold and, if deemed necessary, initiate additional environmental review.